FDOT's Monthly ITS Newsletter

SunGuide℠ DISSEMINATOR

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March 2003 Edition

Link to Florida's Statewide ITS General Consultant

FDOT Joins the I-95 Corridor Coalition

FDOT has become the newest state member of the I-95 Corridor Coalition (the Coalition) – a partnership of major public and private transportation agencies, toll authorities, ports, and related organizations including law enforcement, from Maine to Florida with affiliate members in Canada. The Coalition members work together to improve mobility, safety, and economic vitality in the most congested corridor in the United States.

The Coalition representatives partnered with Federal Highway Administration's (FHWA's) Southern Resource Center last year to begin a dialogue with FDOT and to explore areas of mutual interest. This exploration has resulted in the recognition that FDOT and the Coalition have much to gain from working together.

> "Having Florida DOT as a member of the Coalition will bring additional expertise to the Coalition table to help improve mobility with safety and security in Florida and the entire corridor. Florida is recognized as a leader in the use of intelligent transportation solutions to travel problems, and will be a great partner,"
> — Coalition Chairman John Platt.

The Coalition vision is that the corridor's transportation system will be safe, seamless, intermodal, and support economic growth. Members work together to apply technological and other solutions to shared transportation problems and challenges. By leveraging resources, sharing information, and coordinating programs, members accomplish together what they could not do alone.

Over the last decade, the Coalition has served as a successful model for multi-state/jurisdictional interagency cooperation and coordination, and has undertaken demonstration projects that have now become universally deployed. Florida will participate in the Coalition program areas of coordinated incident management, commercial vehicle operations, traveler information, electronic payment services, and intermodalism.

A Coalition representative will be presenting an overview and providing written materials at FDOT's beginning of the year ITS Working Group Meeting held during the week of March 17, 2003 in Orlando.

For more information, visit the Coalition, Web site at www.i95coalition.org.

This article was provided by Daniel Grate, Jr., FHWA. For more information, please contact Chester Chandler at the FDOT ITS Office in Tallahassee, (850) 410-5600 or email Chester.Chandler@dot.state.fl.us.

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The 2003 National Rural ITS Conference

(Formerly known as RATTS)
August 10-13, 2003

Don't miss this premier event . . .

. . . that all of rural America is coming for!

Mark your calendars **NOW**, and look for "Call for Presentations," participant and exhibitor registration, event sponsorship opportunities, and program information on the ITS America (www.itsa.org) and ITS Florida (www.itsflorida.org) Web sites.

Background

The 2OO3 National Rural ITS (NRITS) Conference, formally known as the Rural Advanced Technology and Transportation Systems (RATTS) Conference, is unquestionably the premier rural ITS conference in the nation. This year's conference is being hosted by ITS Florida at the world-renowned Westin Innisbrook Resort in Palm Harbor, Florida. Past onferences have been held in Redding, California; Keystone, Colorado; Blacksburg, Virginia; Duluth, Minnesota; Spokane, Washington; Big Sky, Montana; University Park, Pennsylvania; Flagstaff, Arizona; Branson, Missouri; Burlington, Vermont; and Monterey, California. The 2004 conference will return to Duluth, Minnesota.

The conference began as a state-organized event, and then became regional. ITS America and the Federal Highway Administration (FHWA) jointly sponsor these rural conferences at the national level. Each year ITS America accepts proposals from local ITS state chapters to host the conference. In August 2000, a proposal to host the 2003 conference was prepared and submitted by ITS Florida. Later that year, the ITS Florida proposal was selected.

On-going discussions are being held with our host venue partner, Westin Innisbrook Resort (www.westin-innisbrook.com), located approximately 25 miles northwest of Tampa International Airport. This award-winning 1,000-acre resort is one of America's premier conference, leisure, and golf destinations. The property features 700 guest suites, 72 holes of championship golf, six swimming pools, jogging and cycling trails, a wildlife preserve, a complete recreation/fitness center, gourmet dining, specialty shops, and three conference centers.

Program, registration, and sponsorship details will be posted by ITS Florida (www.itsflorida.org), ITS America (www.itsa.org), and other transportation-related organizations. Electronic mailing lists (national

and in-state) are being compiled for targeted notification mailings as well. On-line registration will be strongly encouraged.

Conference Program Development

The conference Program Chair is Mike Pietrzyk of Transportation Solutions, Inc. (TSI), and the Program Co-chair is Charlie Wallace of PB Farradyne.

An eight member National Advisory Committee has been established to solicit general guidance regarding program content and format. The new ITS Rural Advocacy Group of ITS America will also provide significant guidance and input.

Specific responsibilities have been assigned to a newly formed committee, the Local Arrangements Committee. This committee is primarily comprised of ITS Florida Board of Directors. Each committee member has been assigned specific responsibilities. The Program Chair will coordinate with each member on an as-needed basis. This committee will include a contracted professional conference planner, who will be selected and announced in the near future.

The conference theme is **"What's Really Happening in Rural ITS and Who's Doing It."** Conference planners are striving to develop a very interactive program format and are soliciting regional and national keynote speakers. Possible Florida-based guest speakers who have been approached include Florida Transportation Commissioner Bob Namoff and State Senator Jim Sebesta. A state legislator involved with "A Blueprint for Rural Florida" will also be contacted.

Program tracks (most likely 3 or 4) are being developed and finalized. One of these program tracks, Public Mobility, has already been developed and will be fully sponsored and provided by the Federal Transit Administration and the Western Transportation Institute at Montana State University. The National Advisory Committee has suggested that the following "rural hot topics" be considered in program development:

- Work zone safety;
- Commercial vehicle security/inspection;
- Emergency management and evacuation;
- Telemedicine;
- Intersection safety;
- Inter-modal commerce efficiency;
- Wireless communications/telecommunications;
- Adverse weather detection and reporting;
- Railroad crossings;
- Traveler information (511, tourism, national parks, welcome centers);
- Actual operations and management experiences;
- Mayday/911;
- Funding opportunities for research, development, and deployment; and
- National "success stories" presented directly from the operating agencies.

Additionally, FDOT's mid-year ITS Working Group Meeting will most likely be held in conjunction with NRITS. Arrangements are also being made for PBS&J to present an ITS Professional Capacity Building course on Traveler Information during the conference. The National Highway Institute's *"Rural ITS Toolbox Course,"* currently under development, may also be offered, or at least discussed and promoted. The conference will also be considering social events geared toward professional networking (dinner cruise) and spouse/family fun (golf, pool or beach party, deep-sea fishing excursion, etc).

Local conference sponsors, as a minimum, include ITS Florida, FDOT, FHWA-Florida Division, and the Florida Commission for the Transportation Disadvantaged. Other national, state, and local event sponsorships are being aggressively sought.

A national *"Call for Presentations"* went out in late February 2003. Presenters were asked to provide PowerPoint presentations in advance of the conference in order to simplify logistics and consolidate audio-visual requirements. Presentations will be posted on the ITS Florida Web site (www.itsflorida.org) after the conference.

Our goal is to attract the largest crowd ever to the 2003 NRITS Conference — **400+ attendees, 40+ exhibitors, and 7+ event sponsorships**.

For more information, please contact Mike Pietrzyk at TSI, (813) 681-6881 or email mcptsi@tampabay.rr.com.

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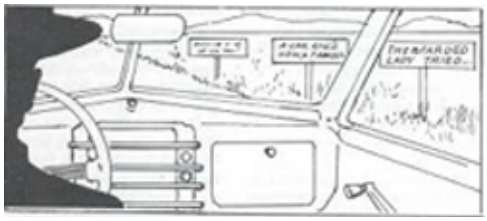
Wherein a compendium of various random facts and snippets of humor is presented on an irregular basis for purposes of cerebral edification and mental diversion!

Remember When — Burma Shave Signs Lined the Highways (Pre-Interstate)?



Around the curve
The car was whizzen
The fault was hers
The funeral hizzen!
Burma Shave

Things You Can Learn From Your Dog!

- ☐ Never pass up the opportunity to go for a joyride
- ☐ Be loyal

Now That I'm Older — I Have Discovered:

- ☐ I started out with nothing, and still have most of it!
- ☐ All reports are in — Life is officially unfair!
- ☐ It is easier to get older than wiser!
- ☐ Allow the experience of fresh air and wind in your face to be pure ecstacy
- ☐ When loved ones come home, always run to greet them
- ☐ On hot days, drink lots of water and lie under a shady tree!

Do you know some interesting trivia?
All submittals welcome!

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Integrated Network of Transportation Information

During the 1990s, the national ITS program made significant progress toward its goals of:

• Reducing traffic congestion;
• Improving safety; and
• Enhancing the overall efficiency of the United States' transportation systems.

Nevertheless, over the last few years there has been increasing realization that for the ITS program to advance further, it must begin focusing a greater proportion of its resources on the provision of enhanced data resources that will benefit a broad cross-section of stakeholder communities.

In response to this perceived need, the US Department of Transportation introduced the concept of a surface transportation "Infostructure" during the 2002 Transportation Research Board annual meeting. The Infostructure is focused on facilitating the collection, integration, and sharing of information regarding road-centric infrastructure (travel time, traffic speed, weather conditions, etc.). At the same meeting, ITS America introduced the Integrated Network of Transportation Information (INTI) as the primary theme of its *National ITS Program Plan: A Ten-Year Vision*.

The INTI concept proposes utilizing Infostructure oriented data as the foundation of a broader network of transportation information incorporating the nation's entire surface transportation network. Moreover, whereas the

Infostructure concept is focused primarily on the public sector, it is anticipated that realization of the INTI concept will be dependent on improved cooperation between the public and private sectors (including vehicle manufacturers, commercial carriers, information service providers, etc.) at all levels.

In an effort to further define and expand the INTI concept, ITS America organized a workshop entitled *"Moving Toward an Integrated Network of Transportation Information,"* which was held February 18-20, 2003, in Houston, Texas.

The workshop began with a simple description of the INTI and what ITS America considers as the most important characteristics to focus on initially. These include:

- **Collecting More/Better Data** - The ITS industry needs to improve the quality of data collection as well as close gaps in currently existing data. This includes the inclusion of information from the private sector.
- **Sharing Data** - Public agencies and private companies must enhance their ability to share data in real-time.
- **Using Data** - The ITS industry must develop new applications for use by transportation system operators, the private sector, and system users. It was observed that participation of the private sector will be a fundamental aspect of achieving this.

In addition, the ITS Joint Program Office of the Federal Highway Administration presented its view on the future of ITS. This presentation focused on the idea that ITS should be deployed locally, but be available to use nationally, and should have the following traits:

- Proactive, rather than reactive;
- Customer-centric, rather than agency-centric;
- System oriented, rather than jurisdiction based;
- Operational 24/7; and
- Performance based, rather than output oriented.

Workshop attendees participated in a number of plenary and breakout sessions covering issues ranging from the development of INTI "End-States" for the six ITS America Forum areas, to the identification of specific challenges (technical, institutional, legal, and economic) that will need to be addressed, together with the prioritization of actions that will need to be taken in order to realize these End-States. There was a remarkable amount of consistency of key findings from each of the forum areas. In particular, the:

- Need for some form of on-going coordination mechanism to continue making progress;
- Need for an articulated over-arching vision, supported by a clear, near-term action plan; and
- Interest in a focused effort to develop methods for implementing floating vehicle data concepts on a large-scale basis to benefit both operators and users of the transportation system.

The workshop concluded with a roundtable discussion concerning the future of the INTI, which was led by representatives from General Motors, On-Star, TransCore, and the Virginia Department of Transportation.

Those interested in learning more about the more finely distilled results of this workshop should keep an eye on the ITS America Web site (www.itsa.org).

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Florida CVISN Projects Receive Approval

The Florida Commercial Vehicle Information Systems and Networks (CVISN) Executive Steering Committee, which is made up of related agency and organization heads from FDOT, the Department of Highway Safety and Motor Vehicles, the Department of Revenue, the Department of Agriculture and Consumer Services, and the Florida Trucking Association, met January 13, 2003, and approved expenditures for three Florida *CVISN Program Plan (Program Plan)* projects as follows:

- Implementation of a Commercial Vehicle Operations (CVO) HelpDesk;
- Implementation of a Commercial Vehicle Information Exchange Window (CVIEW); and
- Development of a program-wide Information Systems Inventory.

As with all multi-year efforts of this scope, the success of the *Program Plan* relies heavily on support from departmental leadership. With this approval from the Executive Steering Committee, the Florida CVISN Team has convened project committees to work on each of these projects, assigned a project leader for each project, and began work in February 2003.

CVO HelpDesk

Although it is not a requirement of the Federal CVISN program, the State of Florida recognized the importance of providing a single point of contact for commercial vehicle regulatory policy and procedure information and included the CVO HelpDesk project in its *Program Plan*. In order to determine the best platform upon which to build the CVO HelpDesk, a task team commissioned a feasibility study to determine not only the state requirements, but the motor carrier requirements as well. The consultant completed the feasibility study in November 2002, and recommended a dual platform with information available both by telephone, via a toll-free number, and through the Internet. By approving the recommendations to implement the CVO HelpDesk project, the Executive Steering Committee has reaffirmed Florida's commitment to improve the state's CVO regulatory environment.

CVIEW

The implementation of CVIEW is an integral part of the Federal CVISN program and one of its core requirements. Of the three *Program Plan* projects approved, this project is the largest — both in terms of its scope and cost. This project is also the most complex as it involves interfacing with several departmental legacy databases. CVIEW will be Florida's internal clearinghouse to manage the flow of commercial vehicle safety and credential data among state agencies. CVIEW will support the electronic credential administration program by distributing credentials data to the state roadside enforcement personnel and to Federal Safety Information Database Systems. CVIEW will greatly enhance the ability of roadside enforcement personnel to do their jobs by providing all relevant safety and credential information

in one place. By approving the implementation of CVIEW in Florida, the Executive Committee has provided the *Program Plan* with an opportunity to move closer to meeting all Federal CVISN core requirements. It is expected that this project will take a year to complete.

Information Systems Inventory

The Information Systems Inventory project will be a detailed inventory of the existing hardware and software of CVISN-related systems. This project will include requirements for linking the systems to promote critical data sharing and ensure timely interagency communication. This project will also help to streamline or eliminate outdated or inefficient business and enforcement processes by documenting hardware and software configurations, communication platforms, CVO-related systems/applications, and data structure architectures. All agencies' systems that support CVO-related activities will be included in this scan to ensure that information is complete and accurate. Having a complete systems inventory will be very beneficial to the *Program Plan* as it moves forward. As implied by its name, CVISN relies heavily on "Systems" and "Networks" and the integration thereof. Knowing exactly what systems (hardware and software) are implemented throughout the various state agencies will facilitate current and future projects that involve the various systems. The results of this project will also be very useful in the development of CVIEW.

The Executive Steering Committee meets periodically to receive updates on the progress of the *Program Plan* and also to provide guidance. The members of this committee provide advice, serve as program 'champions,' and approve or amend the *Program Plan* budget based on their high-level knowledge of existing and newly emerging state initiatives.

In terms of the overall *Program Plan*, approval of these projects by the Executive Steering Committee will permit the CVISN program to take a major step forward. The Executive Steering Committee's leadership and commitment will enable the CVISN program to provide benefits for the motor carrier industry and state agencies, and improve safety for all citizens of Florida.

For further information on the Florida ITS CVO/CVISN Program, visit the Web site at www11.myflorida.com/intelligenttransportationsystems/CVO/CVO.htm.

For more information, please contact Mike Akridge at the FDOT ITS Office in Tallahassee, (850) 410-5607 or email to Mike.Akridge@dot.state.fl.us.

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FM Radio Is Coming to Alligator Alley

Under initiatives by Senator Bob Graham, The Everglades Restoration Act, and the Governor's Commission on the Everglades, FDOT's ITS Office and the Florida Department of

Environmental Protection (FDEP) are developing a new radio service for Alligator Alley (I-75 between Naples and Fort Lauderdale). This new radio service will provide unique information to motorists traveling along Alligator Alley through the Everglades. Motorists who tune in to FDOT/FDEP's new radio stations will receive information about the history, nature, environment, and restoration efforts of the Everglades as well as traffic bulletins, traffic delays, smoke, weather-related conditions, and hurricane evacuation information. FDOT's ITS Office will design and construct the system, and share operating and programming with FDEP.

In 2000, the Federal Communications Commission (FCC) announced the availability of low power FM (LPFM) radio broadcasting licenses in locations that would not affect existing full service FM broadcasters. In 2001, FDOT's ITS Office prepared applications for three locations. In 2002, the FCC granted permits to construct LPFM stations at two proposed locations along the western end of I-75. One location is the Collier County Rest Area and the other is the interchange of I-75 and SR 29. FDOT's ITS Office also submitted an application to the FCC for a station at Naples, but several applicants are contending for the same service area. Therefore, this construction permit has not been issued.

FDOT's ITS Office plans to complete construction of the two stations in mid-November 2003, and will begin broadcasting once the FCC issues operating permissions and call signs. The FCC's LPFM service is based on a projected service radius of approximately 3.5 miles for each station. However, due to the flat terrain of the Everglades, FDOT's ITS Office expects to obtain good service for approximately 7-10 miles from each station. Once these stations are completed and operating, motorists along Alligator Alley will have an unprecedented amount of information available to them.

For more information, please contact Roger Madden, Principal Technical Specialist, PB Farradyne, at the FDOT ITS Office in Tallahassee, (850) 410-5610 or email to Roger.Madden@dot.state.fl.us.

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Statewide Microwave Network

The Telecommunications Section of FDOT's ITS Office continues to monitor the progress of the statewide microwave network upgrade. In May 2002, FDOT awarded GOFF Communications, Inc. (GOFF), a microwave construction and management contract valued at $3.9 million. The scope of work included engineering, installation, and system integration of FDOT's statewide voice and data network. This

work is currently being deployed on time and within budget. The scheduled completion date is in the second quarter of 2003.

ITS deployment and communications will be provided with improved capacity and reliability through the statewide installation of generators, improved lightning surge protection, robust power supplies, and other improvements. A new shelter and tower will be constructed at Miles City and shared by Collier County.

GOFF is an international communications company focusing on wireless communication services, engineering-construction management, and network systems integration. Their team of technology, operations, and project management professionals serves to enable customers to design and deploy value-added network infrastructures.

For more information, please contact Nick Adams at the FDOT ITS Office in Tallahassee, (850) 410-5608 or email to Nick.Adams@dot.state.fl.us.

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Traffic Incident Management — The Open Road Policy

On October 19, 2001, representatives from various state agencies and private organizations met in Tallahassee for a kick-off meeting regarding a new statewide initiative — the Traffic Incident Management Program.

The purpose of this kick-off meeting was to gain support from representatives of these various organizations and to propose a cooperative effort to develop policies and guidelines for the quick clearance of incidents, including stalled and/or crashed vehicles, cargo, and debris from the state's highway system while providing safety to the responders.

Clearance, detection, verification and response, and communications and training, were the four working groups formed from a variety of different agencies to begin the development of this program.

These groups have been meeting on a quarterly basis since January 2002, and have already addressed many key issues concerning traffic incident management. Additionally, they have developed their first work product, the *Open Roads Policy*.

Clearance Team Subcommittee Chairperson, Jennifer Heller, and her subcommittee, together with Ted Smith of P.B. Farradyne, FDOT's consultant for this program, were able to develop a policy agreement between FDOT and the Florida Highway Patrol, which states:

"This agreement by and between the Florida Highway Patrol (FHP) and the Florida Department of Transportation (FDOT) establishes a policy for the FHP and FDOT personnel to expedite the removal of vehicles, cargo, and debris from roadways on the State Highway System to restore, in an URGENT MANNER, the safe and orderly flow of traffic following a motor vehicle crash or incident on Florida's roadways."

The goal is to clear most incidents within 90 minutes.

The policy agreement, signed by both agency heads in November 2002, provides the foundation needed to further develop the Traffic Incident Management Program and helps fulfill FDOT's mission to keep traffic moving in a safe and efficient manner. Only two states have such an ambitious goal for quick clearance of roadways — the states of Washington and Florida.

The purpose of this policy is to make roadways safer for incident responders and motorists by reducing Florida's nation-leading 33 percent chance of secondary crashes.

It may take months, and even years, before motorists see a difference from this policy. By training the police to use the latest investigative technology for gathering evidence at crash sites, improving communications among responders, rewriting age-old regulations for towing companies, and changing the mind-set of those who have been doing their job the same way for years, we can create a Traffic Incident Management Program second to none.

For more information, please contact Lap Hoang at the State Traffic Operations Office in Tallahassee, (850) 414-4866 or email to Lap.Hoang@dot.state.fl.us.

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ITS Supports Traffic Surveillance Research Efforts

Imagine having current video information on traffic situations with recommendations to avoid congestion, or directions for evacuation during hurricanes or other disasters, supplied to your vehicle as you are

traveling along Florida's highways. This technology is here and will be tested by Unmanned Aerial Vehicle (UAV) platforms during flight periods which are tentatively scheduled for July 28 through August 8.

Wait a minute! Unmanned? What's going on here?

FDOT's ITS Office has entered into a research agreement with the University of Florida to undertake a "proof of concept" study to apply current video and communication transmission technologies, and provide traffic images with data for emergency management and for the traveling public. The study, *Airborne Traffic Surveillance System – Proof of Concept Study (ATSS Study)*, is funded through FDOT's research program and represents a comprehensive evaluation of current video technology for traffic surveillance.

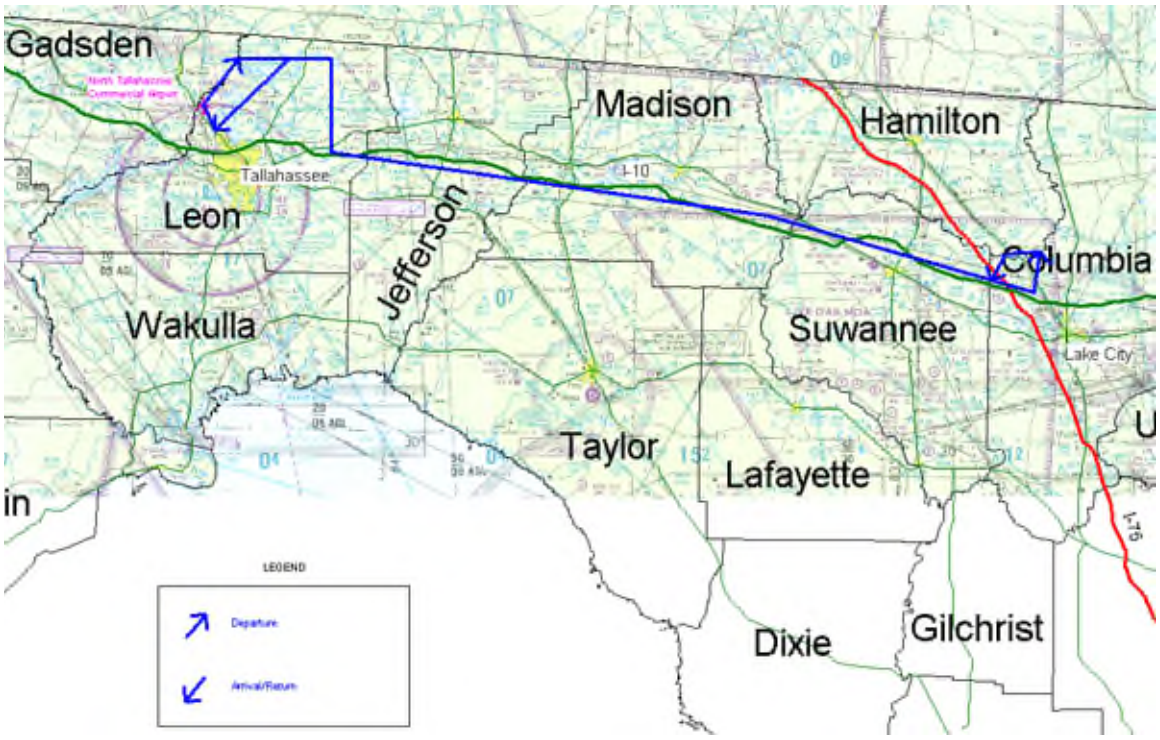
The research team, comprised of professors from the University of Florida's Departments of Electrical and Computer Engineering and the Transportation Research Center, will investigate the integration of Airborne Traffic Surveillance Systems (ATSSs) into the existing FDOT microwave tower system, transportation management centers (TMCs), and the State Emergency Operations Center. Dr. Haniph Latchman is the Project Coordinator and Principal Investigator, and Dr. Ken Courage is the Co-principal Investigator. Mr. Liang Hsia is the ITS Office Research Project Manager, and is assisted by Mr. Lorin Krueger of OLK Consultants, Roger Madden of PB Farradyne, Inc., and Terry Posey of RCC Consultants, Inc.

A Technical Advisory Team has been established and consists of representatives from:

- Districts 2 and 3 ITS Offices;
- Federal Aviation Administration (FAA);
- Federal Highway Administration (FHWA);
- Division of Emergency Management;
- FDOT Safety Office;
- FDOT Public Information Office;
- FDOT ITS Office;
- North Tallahassee Commercial Airport; and
- Other appropriate technical staff to provide expertise to the research study team.

The primary focus of the *ATSS Study* is the integration of the telecommunications associated with ATSS which will allow images and data collected from the UAVs to be transmitted to users in a timely and useable fashion. The ATSS must be able to exchange the gathered information in a variety of forms, such as audio and video. The ATSS must also provide the necessary communications to the UAV to supply command and control, data collection requirements, and other communications demands in a reliable fashion.

A UAV flight profile is being planned with safety aspects maximized for the data collection flights. A proposed flight alignment from the Tallahassee area is shown by the following map.



The UAV would take off from the North Tallahassee Commercial Airport (NTCA), and fly eastward along I-10, avoiding populated areas. The I-10/I-75 interchange area will be the intended video surveillance site. Upon approaching this interchange, the UAV would go into an orbit and begin data collection. The live video would be transmitted to the appropriate microwave tower in the FDOT microwave tower system and sent back to Tallahassee for viewing, evaluation, and/or dissemination to designated locations.

The microwave tower system would need some modifications, (still to be determined) for both video linkage and command and control to the UAV. A thorough review of the electronic signals, telecommunications arena, and logic is being accomplished to support the transmission of video data to the end user. Key actions such as Federal Communications Commission (FCC) frequency allocation permission, FAA flight alignment permission, and public awareness of the flights, must be accomplished prior to the actual testing. Safety to the public and security of the system are the top priorities in the concept development and the actual UAV flight demonstrations.

The concept of utilizing UAVs for remote sensing is not new, nor is the industry only associated with air vehicles. In addition to the UAV effort, the Department of Defense, other nations, and a group of "unmanned system" vendors are developing Unmanned Ground Vehicles (UGVs), Unmanned Surface Vehicles (USVs), and Unmanned Underwater Vehicles (UUVs). Not only are each one of these systems geared to specific requirements, but they all have one thing in common — remote sensing.

The use of a host of unmanned platforms is a revolutionary look at remote sensing to provide information for battlefield situations, which will save lives, time, and resources. Use of the ATSS Study findings may be very important to civilian uses of UAVs and associated remote sensing technology.

The Sentry, shown to the right, is a UAV which was flown as a demonstration at the ITS America 11th Annual Meeting and Exposition in Miami Beach, Florida, in June 2001. The Sentry and its communications links successfully provided video images of traffic along US 27, I-595, and Florida's Turnpike back to a control van at Opa-Locka West Airport.

We look forward to successful flight operations and to prove that the concept to integrate ATSS will work.

For more information, please contact Liang Hsia at the FDOT ITS Office in Tallahassee, (850) 410-5615 or email to Liang.Hsia@dot. state.fl.us.

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UPDATE: Statewide Transportation Management Center Software Library System

When visiting Florida's transportation management centers (TMCs) in Jacksonville, Orlando, Miami, Pompano Beach, and Turkey Lake, our attention will immediately be drawn to the video walls and workstation screens. Comprehensive real-time traffic images and data collected providesFDOT with real-time traffic and incident information. TMCs have the ability to distribute traffic images and collected data to the traveler through the Internet, email, television, radio, fax, and 511 telephone services. An excellent combination of TMC software, hardware, and communications network will integrate these statewide services for all travelers, including tourists and commuters.

Based on the recommendations of the comprehensive *Statewide Transportation Management Center Software Study*, and upper management's approval, FDOT is preparing to acquire technically comprehensive TMC software. This software will help the state of Florida integrate ITS services. The "develop once, use many times" approach will reduce multimillion and multi-year duplication of individual software development and maintenance costs. The primary goals of this solicitation, known as the Statewide Transportation Management Center Software Library System (STMCSLS), are to reduce congestion and delays while responding to traffic incidents in a timely, accurate, and effective manner.

FDOT District Offices, Office of Information Systems, State Traffic Operations, and ITS Office STMCSLS Committee Members have actively participated and successfully completed the following processes:

- Identify user and software requirements;
- Complete STMCSLS requirements and scope meeting;
- Co-develop *Requirements Specifications*, *Scope of Services*, and six addendums for the Invitation to Negotiate (ITN) process;
- Prioritize all user and software requirements;
- Compile ITS devices inventory;
- Evaluate and rank Qualifications Questionnaire replies from Proposers;
- Select short-listed Proposers;
- Evaluate short-listed Proposers' technical and cost proposals; and
- Invite short-listed Proposers for oral presentations.

This project will include the following future tasks:

- Negotiate technical proposals, cost proposals, *Requirements Specifications*, and *Scope of Services*;

- Select contract vendor;
- Update and finalize *Operational Concept from the Introduction to An Operational Concept for the Florida Statewide Library*;
- Complete *Requirements Specifications*;
- Complete risk management process and document;
- Prepare and set up the Statewide TMC Software Configuration Management Lab;
- Design and develop software;
- Test software; and
- Deploy software through implementing build-to-accommodate needs of seven new TMCs and five existing TMCs.

Upper management's support, committee members' active involvement, and the general consultant (PBS&J) team members' knowledge has made the start of this very important project successful.

For more information, please contact Liang Hsia at the FDOT ITS Office in Tallahassee, (850) 510-5615 or email to Liang.Hsia@dot.state.fl.us.

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Locating the Position of Wireless Devices With GeoMode™ Technology

The Federal Communications Commission (FCC) has issued a mandate requiring that wireless carriers be able to locate cellular phones to a level of accuracy sufficient to support 911 emergency dispatch. This mandate has spawned a number of technical initiatives to determine the best way to locate cell phones and other wireless devices, and the implications extend well beyond 911 dispatch.

The wireless E911 program is divided into two phases:

- Phase I requires carriers, upon appropriate request by a local Public Safety Answering Point (PSAP), to report the telephone number of a wireless 911 caller and the location of the antenna that received the call.
- Phase II requires wireless carriers to provide far more precise location information, within 50 to 100 meters of the cellular phone, in most cases.

The ability to locate cell phones opens the door to a wide range of possibilities beyond emergency dispatch. Many applications, from automated vehicle locating to tracking the location of first responders and emergency vehicles, can be enabled or enhanced by simply turning on a cell phone or other wireless device. Unlike GPS, wireless location technologies such as GeoMode™ will maintain their accuracy in urban areas.

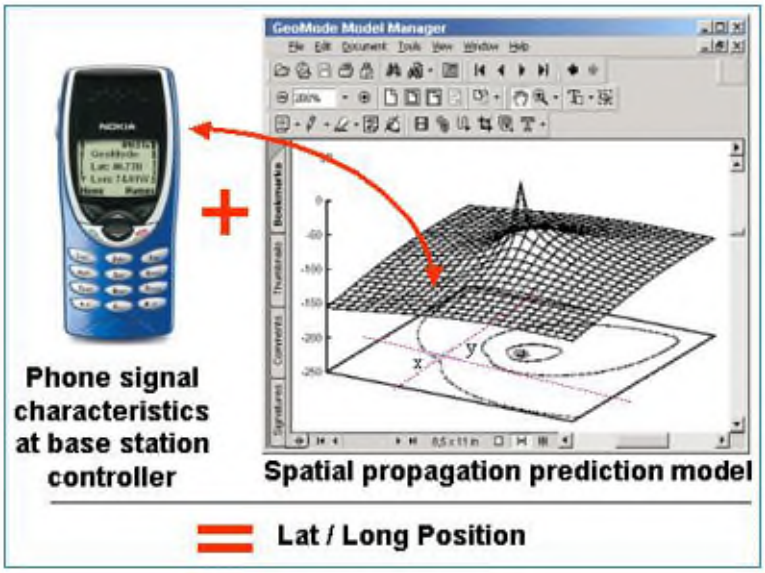
GeoMode™ is a new technology that uses signal data from a wireless device (cell phone, PDA, laptop computer, etc.) to determine a coordinate position for that device. The technology works by doing a statistical comparison of information received from the device itself against a model of signal propagation in the area. GeoMode™ has undergone a number of tests in the United States and Europe, and is currently suitable for pilot implementation.

Location Determining Technologies

Most location positioning products rely on GPS satellites, Time of Arrival (TOA), or Enhanced Observed Time Difference (EOTD) network overlays requiring additional transmitters on the wireless base stations or a mixture of both. The principle behind TOA or EOTD location technologies is called triangulation (or trilateration) whereby the system calculates angles or distances between the phone and several other known points such as telecom base stations. These systems are suitable only for those persons who choose to purchase a special handset, which is very costly and time consuming to implement.

A more cost-effective solution for location positioning is one that can be based on existing radio signal data measurement from a series of base stations to a mobile device. The advantage of this approach is that only existing wireless signal data is analyzed, so no new hardware (network or handset) is required. However, significant signal level variations and multipath effects have proved a major obstacle to many developers. Adaptive schemes have been proposed and tested, but these schemes have not been efficient or cost-effective for deployment on a nationwide basis.

GeoMode™ Approach



Most location positioning technologies have been developed by engineers familiar with geometry and, consequently, the majority of proposed solutions are geometric in nature. For example, TOA or EOTD solutions are nothing more than simple triangulation. The geometric solutions work well in ideal conditions. However, if the signal propagation environment differs from ideal conditions, the distance measurements are inaccurate at best, incompatible at worst.

In contrast to geometric approaches, GeoMode™ uses statistical modeling based on a radio wave propagation prediction, created from known network parameters or from field calibration data, or a combination of both. This approach treats all signal properties as random variables, which are statistically dependent on the location of the transmitter, the receiver, and the propagation environment. Because of this dependency, an observation of the signal properties is actually a specific inference as to actual location of the observation.

Put more simply, the geometric solutions are analogous to purchasing survey equipment, setting up on known benchmarks, taking innumerable measurements, and calculating position. GeoMode™ technology is more like walking into the field with an accurate map, looking around at your surroundings, and determining where you are — much easier and cheaper, and accurate enough for the application at hand.

In statistical terms, the GeoMode™ propagation prediction model is a sampling distribution whose parameters we can estimate. In most propagation prediction models, there are some parameters whose values cannot be derived from the underlying theory. These parameters are related to the location environment, and there are no universally good values. However, by using GeoMode™ network calibration techniques (a mapping of signal characteristics) with empirical data, these values can be estimated by the GeoMode™ location server.

GeoMode™ software computes the X,Y location data in any geographic coordinate system required, and can either convert the X,Y location into a street address by using reverse geocoding software or pass the

X,Y data to a third party location-based service application. This location data, including a complete geographic display, can be provided to any Internet location-based service application or emergency dispatch center. GeoMode™ software can locate any wireless handset or messaging communication device including all legacy cell phones.

GeoMode™ Accuracy

This approach is the basis for GeoMode™ location positioning which has demonstrated accuracy of 17 meters for 67 percent of the time in the challenging urban environment of Manhattan.

The source of this accuracy is a mathematical model. There are three types of models: a network model, a data model, or a hybrid of both.

The network model is based on network and base station data provided by wireless carriers. The network model provides location positioning accurate to within 200 to 300 meters.

The data model is created by calibrating the wireless signal data in the coverage area with GeoMode™ calibration tools and can provide location positioning accurate to within 17 meters.

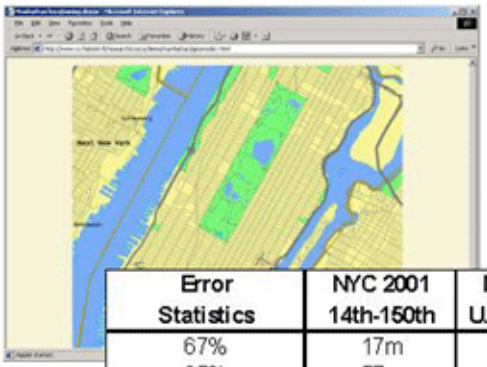
The hybrid model is a combination of both models; it is less costly than the pure data model and more suitable for FCC E911 levels of location positioning accuracy — within 100 meters for 67 percent of the time. Network staff or GeoMode™ service providers can calibrate GeoMode™ models. The calibration specifications are based on the wireless environment and terrain features.

Signal data calibration, which involves drive-testing the network, requires 3 to 10 man-hours per square kilometer depending on the level of accuracy required. Model maintenance is provided by GeoMode™ professional services or by the wireless carrier quality assurance staff. An advantage of the GeoMode™ model is that the accuracy of the location positioning system can always be enhanced by additional calibration. The network and data models can also be synchronized to the wireless network maintenance database.

GeoMode™ software has been rigorously tested in Stockholm, Helsinki, Palo Alto, Indianapolis, New Orleans, and New York. The benchmark for all testing is the FCC mandate, which requires that all wireless carriers have the ability to locate 911 emergency callers to within 100 meters for 67 percent of all 911 calls and within 300 meters for 95 percent of all 911 calls.

New York City Field Trials Error Report

In the 2001 Field Trials in Manhattan, a pure data model was implemented independently from a carrier and demonstrated location accuracy of within 17 meters for 67 percent of the time and 57 meters for 95 percent of the time. The adjacent image indicates some of the key statistics. Note that the accuracy is highest in the "NYC 2001 14th-150th" column, where more time was spent on field calibration of the network model, which is the "map" of signal propagation throughout the test area.



NYC Field Trials

Error Statistics	NYC 2001 14th-150th	NYC 2002 U. East Side	NYC 2002 Times Sq.
67%	17m	32m	30m
95%	57m	60m	100m
Maximum	473m	88m	140m
Test Area	50 sq km	1 sq km	1 sq km
Model Calibration	9 days	1 day	1 day
Network based	Yes	Yes	Yes
Handset based	Yes	Yes	Yes

GeoMode™ Advantages

The advantages of the GeoMode™ statistical modeling approach include high accuracy, low cost, rapid deployment, and ease of installation, as well as operational flexibility. For example, the only possibility of enhancing the accuracy of geometric-based technologies is to increase the accuracy of the measurements, which is difficult as the geometric solutions already use atomic clocks capable of measuring time in nanoseconds. This is not the case with the statistical modeling approach; GeoMode™ accuracy can be enhanced anytime by either switching to a more suitable model for a particular environment or simply calibrating the data model with additional data — as was done in the New York City example.

This article was provided by Richard Goodden of PlanGraphics, Inc. (www.plangraphics.com), a systems design and integration firm specializing in spatial technologies. He can be reached at (301) 588-8535 or email to rgoodden @plangraphics.com.

The author wishes to thank Jim McGeough of Digital Earth Systems (DES) for supplying information on GeoMode™. DES is the North American distributor of GeoMode™ and is a business partner of PlanGraphics, Inc.

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We invite you to have some fun and complete the *SunGuide℠ Disseminator* Word Challenge!

Unscramble the letters to complete the word for the clue found under the boxes. Use the letters in the red circles to complete the final puzzle. An answer guide follows the Announcements.

Enjoy and Good Luck!

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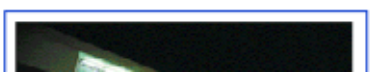
ITS Awareness Day



It is no mystery that our Florida Legislature is dealing with a difficult budget environment. The transportation community will be competing against some very large statewide initiatives that may threaten the level of funding available to continue our important work. You can help ensure the future success of ITS programs in Florida by participating in a unique opportunity to raise our Legislators' awareness and create an understanding of what the ITS community does so well — **use technology and innovation to improve the safety and efficiency of Florida's transportation systems**.

With this in mind, ITS Florida is hosting the ITS Awareness Day in the State Capitol on April 22, 2003, from 8 a.m. to 5 p.m. Exhibit space will be available on the second floor of the Rotunda.

This event presents the ITS community with an opportunity to reach out and inform our State's elected officials about the benefits of ITS during their 2003 Legislative Session. Public agencies, manufacturers, academia, and consultants are invited to exhibit ITS projects, products, and services that highlight the successful track record already being experienced in Florida. The location of the exhibit area in the Capitol building will give event participants and our Legislators a chance to discuss the opportunities and benefits that future ITS initiatives will make available through the continued support of our State's elected officials.

We would like to display a variety of projects in the Capitol, such as:

- The Palm Beach County Interim Traffic Management System in District 4;
- The GPS-based priority control system deployed in Broward County;
- The variable pricing strategy in Lee County;
- The Orlando Regional Alliance for Next Generation Electronic Payment Systems (ORANGES); and many others.

Representatives from FDOT's ITS Office, the staff of the Florida Transportation Commission, and members from ITS Florida will be present. Companies, such as 3M, TransCore, PB Farradyne, PBS&J, HARTLine, Genesis Group, and many more, will be participating. We encourage you and your organization to participate, to help our Legislators understand that ITS can provide a bright future for our citizens and visitors.

For more information, please check the ITS Florida Web site at www.itsflorida.org or contact either Terry Griffith at TDGriffith@ mmm.com or Erika Ridlehoover at Erika.Ridlehoover@transcore.com.

We look forward to seeing you in the Capitol on April 22!

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Editorial Corner

Greetings to Everyone!

Let's begin by stating that I am ecstatic to be home in Jacksonville after a trip to the Washington, D.C. region last month. I had the chance to attend my niece's graduation from the FBI academy in Quantico, VA. It was an impressive event that was concise, structured, and very entertaining. What caught my attention was the variation in the ethnic background and gender of all the graduates. Over 45 officers survived the academy's training regime and are now proud to be called Special Operations Detectives.

The ceremony showed a video on the experiences of all these agents — from climbing walls to spending tireless hours on the shooting range, to spending countless hours in the library researching historical cases. These graduates dedicated themselves to the completion of this curriculum to help serve our Country in a time of need while maintaining the relationship required of a spouse, parent, or friend. The Deputy Director said it best when he commented on the commitment that these individuals gave to the FBI and the patience that family members kept as they dealt with this 17-week challenge. Even more impressive was the gratitude shown by the graduates and FBI Directors who turned to the crowd and gave the families a standing ovation.

While we were there, my wife and I stayed at the Crossroads Inn, on the Quantico Marine base which is utilized by military personnel awaiting deployment. I had the opportunity to get up close and personal with individuals who are willing to place their lives on the line in order to preserve our freedom. Many of these men and women are preparing to be shipped to the Middle East in the eventuality of a war. I did not see concern or fear in their eyes, but instead, witnessed courage and pride as they prepared to begin their tour of duty.

We decided to stay a few extra days for a sightseeing trek through Washington. As you may well know (and every D.C. resident reminded me), it was the **coldest** winter ever recorded for this region. By the time we decided to drive into D.C., the roadway shoulders were covered with over one foot of snow and sidewalks were impassible.

That didn't deter these brave Floridians!

We jumped in the rental car and began our journey through … (o.k.) ... Hell! Traffic was a nightmare and road conditions were challenging due to all of the potholes. On average, there was an accident every three miles and my wife continually asked why the Dynamic Message Signs (DMSs) were not being used to alert motorists of the upcoming accident. I had to reply with that dumbfounded husband look and say, "I don't know."

I was actually disappointed by the ITS program in the region —

- The DMSs were never used (even as I drove past over 20 accidents).
- The three person high-occupancy vehicle lanes were never above half capacity; thus negating the impact these extra lanes could provide.
- There was no 511 system to call in order to get traffic updates. Fortunately, I found a talk-show radio station that provided traffic information every 15 minutes. This station's broadcast allowed me to avoid a four-mile back up on I-95 and provided us with the opportunity to take US 1 north instead.

The main reason we returned home two days prior to our planned departure was due to these inconveniences.

During the 10-hour drive home, we had an in-depth conversation on ITS and the benefits it provides to motorists. I enlightened my wife on the experiences I had encountered with Florida's ITS program during this past year at the job. I told her how impressed I have been with the efforts involved in the development of systems by Districts 5 and 6 as well as Florida's Turnpike Enterprise. I can only hope that District 2 will keep up with these programs in the years to come. I emphasized the importance of the expertise that our consultants and contractors provided FDOT during the deployment of the statewide ITS program. Their knowledge, skills, and abilities are what have made this venture a success and a model for other state DOT's to follow.

As we progress into the future of Florida's ITS program, let us remember that it is a cooperative effort between seven Districts, Florida's Turnpike Enterprise, and the Central Office.

As my wife and I approached the Florida state line, I noticed license plates from Oregon, Maine, Ontario, North Carolina, and Texas. This reminded me that we are not only serving the citizens of Florida, but also hundreds of thousands of motorists from all over North America. This solidified my belief that it is FDOT's duty to make the state of Florida the model ITS program for other states to follow.

We are well on our way toward making ITS in Florida a success. I thank each one of you for making this effort possible and look forward to working toward this goal in the years to come.

This editorial was provided by Peter Vega, P.E. at the FDOT District Two Traffic Operations Office. He can be reached at (904) 360-5463, or email to Peter.Vega@dot.state.fl.us.

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Moment of Humor!

Bob, call you right back. Our video walls are getting too real for comfort!

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Announcements

The New Secretary of the Florida Department of Transportation

On March 5, 2003, Governor Jeb Bush announced the appointment of Jose Abreu as the Secretary of the Florida Department of Transportation serving during Governor Bush's second term.

Jose Abreu has served as the District Six Secretary of the Florida Department of Transportation since 1995. He has effectively administered the overall planning, design, construction and maintenance of the state highway system in Miami-Dade and Monroe counties. He oversees the management of a workforce of more than 600 employees and countless private contractors and consultants secured to implement the district's $3 billion five-year work program. Mr. Abreu was born in Cuba and is a 1977 graduate of the University of Miami with a Bachelor of Science degree in Civil Engineering. He is a licensed Professional Engineer and a certified engineering contractor.

"The ITS Office conveys its best wishes to FDOT's 34th Secretary of Transportation, Jose Abreu, upon his appointment by Governor Bush. We look forward to working with Secretary Abreu in the months ahead on many interesting ITS initiatives."

ITS Florida's Member of the Month

ITS Florida is publishing monthly articles on ITS professionals on their Web site at www.itsflorida.org. **Check to see who is in the spotlight this month!**

Check Out ITS Florida's Calendar of Events

ITS Florida maintains a Calendar of Events which includes upcoming:

- Training;
- Meetings; and
- Conferences/expositions.

Visit the ITS Florida Web site at www.itsflorida.org for this information and much more.

Look for the *SunGuide℠ Disseminator Supplement*

The FDOT ITS District Progress Reports are located in a supplement to this newsletter.

Link here to your copy of the quarterly update of the District Progress Reports.

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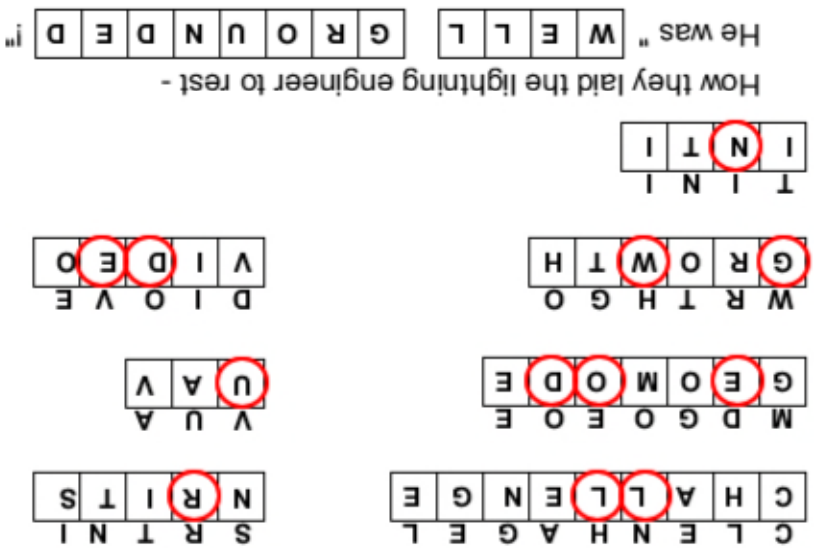
SunGuide℠ Disseminator Word Challenge Answers



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